STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 7754

Petition of Green Mountain Power Corporation, pursuant to 10 V.S.A. Chapter 43, for authorization to install an inflatable flashboard system at the Gorge #18 hydroelectric facility located in South Burlington and Colchester, Vermont, and for a determination that the public safety is adequately protected	))))))	Hearing at Winooski, Vermont July 12, 2012

Order entered: 10/10/2012

PRESENT: John P. Bentley, Esq., Hearing Officer

APPEARANCES: Harriet King, Esq.
King & King
for Green Mountain Power Corporation

John Beling, Esq.
for Vermont Department of Public Service

Donald Einhorn, Esq.
for Vermont Agency of Natural Resources

I. INTRODUCTION

This case involves an application/petition filed by Green Mountain Power Corporation ("GMP" or "Applicant") on June 28, 2011, requesting that the Vermont Public Service Board (the "Board") authorize, pursuant to 10 V.S.A. Chapter 43[1], the replacement of the existing wooden flashboard system at the Gorge #18 hydroelectric facility (the "Gorge dam"), located on the Winooski River, with an inflatable flashboard system (the "Project") and determine that the Project serves the public good and adequately protects public safety. In this proposed decision I recommend that the Board grant the petition and approve the alteration of the Gorge dam.

1. 10 V.S.A. § 1080 *et seq*.

A. Procedural History

In support of the petition, GMP filed with the Board the prefiled testimony and exhibits of Josh Castonguay and Thomas Kahl[2]. By letter dated June 28, 2011, pursuant to 10 V.S.A. § 1084, GMP requested the Commissioner of Fish and Wildlife to investigate the potential effects of the Project on fish and wildlife habitats and certify the results to the Board. By memorandum dated June 14, 2012 (the "1084 Certification"), the Commissioner of Fish and Wildlife, Patrick Berry, certified that the Project is not anticipated to have an adverse impact on fish and wildlife habitats provided GMP complies with three conditions specified in the 1084 Certification.

GMP and the Vermont Agency of Natural Resources ("ANR") entered into a Memorandum of Understanding dated July 12, 2012 (the "MOU"), which has been admitted as Joint Exhibit 1, resolving issues raised by GMP's Petition and outstanding under an Agreement entered into in November of 1993 among GMP, ANR, and the Vermont Natural Resources Council (the "1993 Agreement").

Pursuant to 10 V.S.A. § 1087, the Board retained Dubois & King ("D&K") to investigate and review the plans and specifications to ensure that the Project adequately provides for the public safety. By letter to the Hearing Officer dated April 24, 2012 (the "D&K Draft Report"), D&K submitted its preliminary findings and conclusions regarding the Project. The D&K Draft Report found that, assuming that questions and comments in the D&K Report were satisfactorily addressed, "the design of the new inflatable flashboard system meets the industry standard of care and provides for adequate public safety." By Supplemental Prefiled Testimony dated May 11, 2012, Thomas Kahl addressed the D&K comments and questions in its Draft Report. By letter to the Hearing Officer dated June 6, 2012, D&K submitted its final report (the "D&K Final Report") on the Gorge dam review finding Mr. Kahl's comments to be complete and satisfactory and affirming that the design of the new inflatable flashboard system meets the industry standard of care and provides for adequate public safety. In Additional Supplemental Prefiled Testimony filed June 13, 2012, Thomas Kahl addressed comments in the D&K Final Report.

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2. Cites to the prefiled testimony of Josh Castonguay are herein described as "JC pf." and cites to the prefiled testimony of Thomas Kahl are herein described as "TK pf.".

On May 31, 2012, GMP gave notice to the governing bodies of the Town of Colchester and the City of South Burlington of its Petition to the Board, together with supporting documentation as required by 10 V.S.A. § 1083.

A prehearing conference was held on August 26, 2011, to consider a schedule for the issues raised by GMP's Petition. A site visit was held on October 5, 2011. A further site visit was attended by representatives of the ANR on October 12, 2011, at which different flows over the crest of the dam were viewed. Informal discovery was exchanged among the parties.

A technical hearing was held on July 12, 2012, in Winooski, Vermont. Notice of the hearing was posted at the municipal offices of Colchester and South Burlington, and published in the Seven Days Newspaper on July 5, 2012.

B. Legal Standard

The proposed Project will require intermediate piers and new abutment surfaces obstructing some of the current spillway length at the Gorge dam. Those changes will necessitate lowering the spillway crest in order to maintain the same upstream water elevation during a flood as the existing spillway. 10 V.S.A. § 1082 specifies that no person may "construct, enlarge, raise, lower, remodel, reconstruct or otherwise alter any dam . . . which is or will be capable of impounding more than 500,000 cubic feet of water . . . unless authorized" by the Board. The Gorge dam impounds in excess of 500,000 cubic feet of water, thus the Project is subject to Board jurisdiction under 10 V.S.A. Chapter 43. For any project subject to its jurisdiction, 10 V.S.A. § 1085(2) requires the Board to hold a hearing to determine whether the project serves the public good as defined in 10 V.S.A. § 1086 and provides adequately for the public safety.

Based on the Petition, the associated prefiled testimony, the MOU (Joint Exhibit 1), the § 1084 Certification, the D&K Final Report and evidence presented in the technical hearing and the absence of any factual disputes, I have determined that this matter is ready for decision and I hereby propose that the Board make the following findings and issue an order determining that the Project serves the public good as required by 10 V.S.A. § 1086 and adequately protects public safety.

II. FINDINGS

A. The Project

1. The Gorge dam is located in the Town of Colchester and City of South Burlington, Vermont, approximately 11 miles upstream from Lake Champlain and approximately 6.5 miles below GMP's Essex Plant #19. The drainage area at the dam is approximately 1080 square miles and the average annual flow is 1850 cfs for the period from 1929 to 1990. JC pf. at 2, 3; GMP-JC Exhibit A.

2. The existing Gorge dam was originally constructed in 1928 and contains one Norcan variable pitch runner rated for 34 feet of net head that operates at 180 rpm. The Allis-Chalmers generator is rated at 3.0 MW at a 0.8 power factor; however, GMP does operate the turbine up to outputs of 3.6 MW when allowed by head and flow conditions. JC pf. at 3; tr. 7/12/12 at 9 (Castonguay).

3. The existing overflow spillway at the Gorge dam has wooden flashboards that are five feet in height, comprised of vertical I beam steel posts that are set into pockets in the concrete crest to support wooden planks between the posts. The wooden flashboards are designed so that when the water reaches a few feet above the top of the wooden boards the water pressure causes the vertical posts to bend downstream increasing the spillway's hydraulic discharge. The boards are designed to fail under high flows. The boards are typically in place except during the spring and other periods when flows are high. TK pf. at 2 as corrected by Thomas Kahl's supplemental prefiled testimony ("TK spf") attach. I at 3.

4. Due to river conditions, it is very challenging to keep the Gorge dam flashboards fully intact. The plant is operated as a run of the river facility and available river flows at the Gorge are dictated by the daily regulation of the flows at GMP's Essex Plant No. 19 under the 1993 Agreement. The higher turbine discharge capacity and longer spillway lengths of the Essex station compared to the Gorge dam results in higher spillway overflow water levels. Also, during periods of high river flow the Gorge dam's intake often clogs and the unit has to go offline, resulting in higher spillway overflow water levels that can trigger the boards to drop. In addition, debris and ice funneling through the gorge impact the wooden boards causing random panel breakage. TK pf. at 3.

5. Loss of the flashboards reduces the spillage crest by five feet and affects the 6.8 mile reach of the Winooski River above the dam. During the spring, the flashboards are usually down from late March or early April and through late May or early June. Historically the wooden flashboards have been lost on the average of three to four times per year and can be reinstalled only after flows have receded, but are likely to exceed that average in years of particularly high flows and fluctuations. TK pf. at 3.

6. The unreliable Gorge dam wooden flashboard system results in lost generation and increased operation and maintenance costs. The wooden flashboard system also results in less predictable downstream flows and less stable pond levels, adversely affecting the ability of GMP to comply with the 1993 Agreement. The automated inflatable flashboard system proposed will provide better headpond-water-level control and provide more accurate, reliable, and consistent passage of minimum flows. The system further will provide GMP with the ability to reliably lower the dam crest to mitigate ice and debris surface jams compared to the more random failure of steel pin wooden flashboards. It will allow the dam crest to be raised without the safety risk to operators inherent in the wooden flashboard system. TK pf. at 4.

7. GMP is proposing to replace the existing wooden flashboards with a pneumatic activated flashboard system manufactured by Obermeyer Hydro Incorporated (the "Obermeyer system"). Plans and Specifications are shown on GMP-TK Exhibit 1. The proposed inflatable flashboard system will require construction of intermediate piers and new abutment surfaces, which will obstruct some of the current spillway length. As a result, the spillway crest elevation will be lowered by four inches to maintain the same upstream water elevation during a 100-year flood as the existing spillway. The top of the new inflatable flashboard system is identical to the top of the existing wooden flashboards. Thus, there will be no difference in normal pond levels and hydraulic loading between the existing and proposed conditions. TK pf. at 4; TK spf. attach. I at 3.

8. Pneumatically activated flashboards have successfully functioned on numerous dams in Vermont since 1989. The Obermeyer system to be installed by GMP at the Gorge dam uses a series of airtight rubber bladders to lift sections of steel flashboards to a desired height. The

steel flashboards are hinged at their base on the dam crest and lie flat against the dam when the rubber bladder is deflated. TK pf. at 4–5.

9. Low-pressure air blowers housed in the Gorge dam's powerhouse will be used to supply the approximately 3 psi needed to fully inflate the bladder. The control system will also be located in the powerhouse. A programmable logic controller will govern the automated flashboards to maintain a steady head pond. In addition to the pond control capabilities, the longest spillway section, on the right side of the Project looking downstream, will include a gate position sensor. The gate position sensor will be used to determine flow in conjunction with a measured water elevation. A manual override will be available for temporary operations such as facilitating the sluicing of debris and ice away from the intake and over the spillway. A backup mechanical control will force the deflation of the flashboards in flood conditions if electrical power is lost. TK pf. at 5–6.

10. The powerhouse is eligible for listing as a historic structure as it is more than fifty years old. The installation in the existing powerhouse of an air compressor and other equipment needed for the installation and operation of the inflatable flashboards may require removal of existing unused equipment in the powerhouse. Changes at the powerhouse have been discussed with Devin Coleman, Historic Preservation Review Coordinator for Historic Preservation. Mr. Coleman has advised GMP that GMP's plans are acceptable in connection with obligations for preservation of historic structures. JC pf. at 4–5.

11. The proposed configuration for the Gorge dam pneumatic flashboards includes replacing the existing wooden flashboards on the three straight sections of the existing overflow spillway upstream of the headgates. A fourth section of wooden flashboards in the intake canal, downstream of the headgates, will also be replaced to help pass debris and provide additional flow. Concrete demolition and resurfacing of the crest will be required to provide a smooth surface for the new inflatable bladders to bear on with a reduced potential for wear. TK pf. at 5; GMP-TK Exhibit 1.

12. GMP proposes to reduce leakage under the existing spillway by grouting areas of the dam with pressure cement where leakage has been noted. Although previous dam inspections and evaluations have determined that this constant long-term leakage is not a dam safety concern,

GMP is proposing to attempt to eliminate or reduce this flow so that it can be used for generation. Although the effectiveness of this type of grouting is variable, it may be cost effective for this Project since a contractor will already be mobilized on site for the inflatable replacement flashboard project. The areas to be grouted will be limited to sealing the bore holes at the base of the dam, which are causing several geysers in the bypass area, and the dogleg crack. TK pf. at 6; MOU Section 12; 1084 Certification Condition 2.

13. The exact plan for the dam modification work and inflatable flashboard installation will be based on the contractor's chosen means and methods. Construction activities on the dam will not commence before issuance of an order approving GMP's Petition in this docket and any other required permits. Spillway crest concrete will be removed with hand tools to accommodate the new flashboard system. The embedded air piping and components of the inflatable flashboard system will be installed and concrete placed for the spillway crest, abutments and intermediate piers. Using the on-site derrick crane, mobile crane or other method developed by the contractor, the components of the inflatable flashboard system will be lifted into place and installed on the crest. Once the system is tested and is confirmed to be performing as designed, the contractor will demobilize from the site. All work is expected to be substantially completed in 2013. TK pf. at 6; tr. 7/7/12 at 9.

14. The generation increase resulting from the Project is expected to be approximately 600 to 700 MWH per year depending on river conditions. Currently, the Gorge dam produces an average of approximately 11,300 MWH per year. TK pf. at 7; tr. 7/7/12 at 13.

15. The inflatable flashboard installation will increase generation because: (1) the headpond will be higher for longer periods of time thereby increasing the head on the turbine; (2) the inflatable flashboards will allow river debris and ice to be more readily discharged from the site reducing material accumulation on the intake trashracks and the resulting headloss; and (3) the headpond will not need to be periodically lowered below the crest to allow the safe installation of the existing steel pins and wooden boards. TK pf. at 7.

B. Operation of the Gorge #18 Facility

16. The Gorge dam is not a FERC-licensed facility. In connection with the Federal Energy Regulatory Commission ("FERC") relicensing of the Essex 19 facility in 1993 and the 401 certification from the State of Vermont required for issuance of the new FERC license, GMP agreed to manage flows at Gorge dam consistent with the Essex 19 flows under the 1993 Agreement. Thus, minimum flows required under the 401 certification for Essex #19 ("the Essex #19 401 Certificate") are also applicable to Gorge dam. GMP-JC Exhibit C.

17. Under paragraph 3 of the 1993 Agreement, GMP is required to manage flows below Gorge dam in an equivalent manner to the requirements of Conditions B, C, D, and E of the Essex #19 401 Certificate. Condition B addresses minimum flows requiring run-of-river[3] during April 1 – May 15, 1,000 cfs during May 16 – June 15, and 450 cfs during June 15 – March 31. Condition C requires that whenever Essex #19 is not operating, all flows must be spilled over the dam crest, except as necessary to operate fish passage facilities. Condition D addresses the June 1 to June 15 minimum flow requirement should it be determined by ANR that sturgeon runs in the Winooski River no longer occur. Since no such determination has been made, the minimum flow requirements of Condition B continue to apply. Condition E limits peaking operations so that on any calendar day the difference between the high and low artificial flows meet the requirements in the table on page 53 of the 401 Certificate for the calendar periods shown. Application of those requirements to the Gorge dam means that it cannot be operated to provide any storage capacity above the Gorge dam. Pursuant to paragraph 4 of the 1993 Agreement, GMP has installed downstream fish passage. JC pf. at 3–4.

18. GMP has agreed to operate the Gorge dam as set forth in the MOU and to provide the information and meet other applicable requirements contained in the MOU. Where the terms and conditions established in the MOU modify a term or condition that was contained in the 1993 Agreement, the requirements established in the MOU shall apply. Terms and conditions contained in the 1993 Agreement that are not addressed by the MOU shall continue to be governed by the 1993 Agreement. In any instance where it is unclear as to whether the MOU or

3. As defined in the MOU; see page 14 below.

the 1993 Agreement governs, the term or condition that provides the greater benefit to, or is more protective of, natural resources shall prevail. MOU Section 16.

19. The MOU relieves GMP of the obligation to perform the aesthetics study required by the 1993 Agreement and addresses compliance by GMP with the requirement in the 1993 Agreement that it construct a canoe portage at the Gorge dam. MOU Section 9.

C. Review of the Project Under § 1086 Criteria

Agricultural Land

[10 V.S.A. § 1086(a)(1)]

20. The Project will have no effect on cultivated agricultural land because it will not change the current impoundment nor will there be any impact on the capacity of the spillway to pass water from current conditions. Furthermore, there is no cultivated agricultural land in the vicinity of Gorge dam. JC pf. at 5–6; *see* TK pf. at 4; *see* GMP-JC Exhibit A.

Scenic and Recreational Values

[10 V.S.A. § 1086(a)(2)]

21. Under section 9 of the MOU, compliance by GMP with the spillage requirements of section 2 of the MOU will satisfy the aesthetic criteria of § 1806(a). Section 2 of the MOU requires that GMP will spill a minimum of fifty cubic feet per second (50 cfs) over the crest, and down the face, of the Gorge dam at all times in order to ensure adequate aquatic habitat conditions in the bypass. It is acceptable for GMP to limit the area of the spillage to the main section of the dam, which spans approximately 160 feet from the river's right bank to the dam's dogleg, and which will be outfitted with two pneumatically activated steel flashboards, each approximately 80 feet in length. Spillage shall be full crest spillage over the main section of the dam and be distributed as evenly as is practicable. After installation of the Project, spillage will take place over the crest of the pneumatic flashboards, rather than over the wooden flashboards, with, at most a slight, or no, impact on aesthetics. One of the benefits of the Project is that it eliminates unsightly failed wooden flashboard debris in the Winooski River. GMP will also, under the terms of section 10 of the MOU, acquire the necessary property rights for providing

public access to and from the river, complete construction of the canoe portage required under the 1993 Agreement, and maintain the completed portage route, including providing adequate signage, thus enhancing recreational values in satisfaction of this criteria. MOU Sections 2, 10; JC pf. at 6.

Fish and Wildlife

[10 V.S.A. § 1086(a)(3)]

22. Pursuant to 10 V.S.A. § 1084, the Commissioner of Fish and Wildlife has investigated the potential effect on fish and wildlife habitats of the Project and certified that it is not anticipated that the Project will have an adverse impact on fish and wildlife habitats provided that GMP complies with specified conditions in the 1084 Certification. The MOU also addresses fish and wildlife habitat issues. The conditions set forth in the 1084 Certification and sections 2 and 3 of the MOU include requirements for minimum bypass habitat flows of 50 cfs at all times as well as a minimum flow of 60 cfs through the downstream fish passage facilities during certain calendar periods. MOU Sections 2 and 3.

Forests and Forest Programs

[10 V.S.A. § 1086(a)(4)]

23. The Project does not involve the cutting of trees or any construction activities within a forest. The Project is a replacement of the existing flashboards with a more efficient inflatable flashboard system with no change to the impoundment. The operating conditions set forth in the 1993 Settlement and MOU do not result in a new reservoir being created or forestlands being inundated. Therefore, the Project will have no effect on forests or forest programs. JC pf. at 6.

Minimum Water Discharge Flow Rate

[10 V.S.A. § 1086(a)(5)]

24. As found in finding 6 above, the Project will provide for greater accuracy and efficiency in complying with the 1993 Agreement and MOU minimum flow requirements and, thus will not have an undue adverse effect on minimum flows. GMP shall develop, and submit

to ANR for review and approval, a Flow and Water Level Management and Monitoring Plan detailing how the Project will be operated to achieve compliance with the flow requirements of the MOU. MOU Section 7.

Existing Uses of the Waters

[10 V.S.A. § 1086(a)(6)]

25. The Project, being the replacement of the existing wooden flashboard system with a more efficient inflatable flashboard system, will not adversely affect any existing uses of the waters of the Winooski River by the public for boating, fishing, swimming, or other public uses and those uses will be enhanced by the elimination of the failed wooden flashboards in the Winooski River. GMP's completion of the canoe portage required by the 1993 Agreement and section 10 of the MOU will enhance the public's boating use of the Winooski River in the vicinity of the Gorge dam facility. JC pf. at 7.

Hazards

[10 V.S.A. § 1086(a)(7)]

26. The Project will not have any undue adverse impact or create any hazard to navigation, fishing, swimming, or other public uses. The State classifies the Gorge dam as a Class 3 low risk dam. The Coast Guard jurisdiction in the Winooski River does not extend up as far as the Gorge dam site. JC pf. at 7.

Timber

[10 V.S.A. § 1086(a)(8)]

27. The Project will not require cutting or removal of any timber or tree growth from any part of the flowage area. JC pf. at 7.

Public Benefits

[10 V.S.A. § 1086(a)(9)

28. The Project will provide many public benefits, including increased tax revenues to the City of South Burlington and the Town of Colchester. In addition, the Project will result in work being performed and jobs supporting the Project by various contractors and suppliers which will be of economic benefit to the State by providing some additional tax revenues. JC pf. at 8.

Classification of Affected Waters

[10 V.S.A. § 1086(a)(10)]

29. The Winooski River in the area of the Project is a Class B water classified as a warm water fishery. The Project will have no impact on those classifications. GMP shall conduct a dissolved oxygen study and achieve compliance with the dissolved oxygen criteria of the Vermont Water Quality Standards. JC pf. at 8; MOU Section 4.

State, Regional or Municipal Plans

[10 V.S.A. § 1086(a)(11)]

30. The Project will have no effect on any applicable state, regional or municipal plans since it is the replacement of an existing system with a more efficient system. JC pf. at 8.

Municipal Grand Lists and Revenues

[10 V.S.A. § 1086(a)(12)]

31. The Project will have an effect on municipal grand lists and revenues due to the increased generation provided by the Project. Property taxes are based on a ten-year average of generation output. The increased generation described in finding 14, above, will increase that average with the full impact realized ten years after the Project is completed. GMP pays taxes to both South Burlington, 76%, and Colchester, 24%. JC pf. at 8.

Public Safety

[10 V.S.A. § 1086(a)(13)]

32. The Project will not adversely impact public safety. As found in finding 25, above, public safety will benefit by the elimination of failed wooden flashboards in the river. Further, because the dam crests are being lowered to prevent any decrease in spillway hydraulic discharge, there is no increase in the upstream 100-year flood elevation. This Project will not exacerbate upstream flooding in the Town of Colchester and the City of South Burlington. As noted in finding 26, above, the dam is categorized as low risk Class 3. An important advantage of the Project is that it will decrease headpond fluctuations. JC pf. at 9; D&K Report.

D. Provisions of the MOU

The MOU between GMP and ANR, entered into by those parties on July 12, 2012, contains the following regulatory provisions[4]:

2. Bypass Habitat Flows. GMP shall spill a minimum of fifty cubic feet per second (50 cfs) over the crest, and down the face, of the Gorge #18 dam at all times in order to ensure adequate aquatic habitat conditions in the bypass. It is acceptable for GMP to limit the area of the spillage to the main section of the dam, which spans approximately 160 feet from river right to the dam's dogleg, and which will be outfitted with two pneumatically activated steel flashboards, each approximately 80 feet in length. Spillage shall be full crest spillage over the main section of the dam and be distributed as evenly as is practicable. GMP may also provide spillage over additional sections of the dam provided that: the amount of total spillage at any one time shall never be less than 50 cfs; spillage over the main section of the dam shall always consist of at least one inch of water over top of the crest; and compliance with all other terms and conditions of this MOU are achieved. The above spillage requirements may be relaxed during the existence of an emergency or special operations for maintenance as those are defined in the Flow and Water Level Management and Monitoring Plan identified in Section 7 of this MOU.

3. Downstream Fish Passage. GMP has installed downstream fish passage facilities at the Gorge #18 dam. Design plans for the downstream fish passage facilities were reviewed by the US Fish and Wildlife Service and by the ANR. GMP shall pass a minimum of 60 cfs through the downstream fish passage facilities on a continuous 24/7 basis during the following two calendar operating periods: April 1 through

4. Provision number 1 has been excluded, as it was not regulatory in nature.

June 15 and September 15 through December 15. These periods are intended to accommodate migratory steelhead and landlocked salmon, whether pre-smolts, smolts or kelts, and seasonal movements of resident trout, which do occur between the Essex #19 and Gorge #18 dams. Should it later be discovered that fish passage is ineffective, GMP and the ANR shall work together to develop, and implement, alternatives that will provide for effective passage. Such alternatives may include structural changes or changes in operation, such as more attraction water or modifications to the dam spillage during passage periods.

4. Dissolved Oxygen. Construction and operation of the Project shall not result in a failure to meet the water quality criteria for dissolved oxygen ("D.O."), applicable to the river reach immediately downstream of the Project, as established by the Vermont Water Quality Standards. Within one year of completion of the Project, GMP shall conduct a study to determine whether the D.O. criteria are being met, or whether operation of the Project is degrading downstream D.O. concentrations. The study plan shall be developed in consultation with the ANR and shall be subject to the ANR's review and approval. The study shall be filed with the Board with copies provided to the ANR. If the study documents that D.O. concentrations are not meeting the applicable water quality criteria, GMP shall propose and implement, subject to the ANR review and approval, changes in Project design or operation to mitigate the impact and meet the water quality standards. Any such agreed upon changes shall be filed with the Board.

5. Run-of-River. The Project shall operate so that it achieves instantaneous run-of-river at all times, with the limited exception of the need to perform special operations for maintenance or emergencies that necessitate raising or lowering of the impoundment as those are defined in the Flow and Water Level Management and Monitoring Plan identified in Condition 6 of this Order. Non-emergency special operations shall be approved in advance by the ANR. For purposes of this requirement, run-of-river is defined as follows: the Project does not operate out of storage and, therefore, does not artificially regulate streamflows below the Project's tailrace. Outflow from the Project is equal to inflow to the Project's impoundment on an instantaneous basis. The flow regime below the Project is essentially the river's natural regime, except in special circumstances, such as following maintenance of the crest gates and Project shutdowns. Under those circumstances, a change in storage contents is necessary, and outflow is reduced below inflow for a period.

6. Debris Management. GMP shall comply with the following debris management plan in connection with the operation and maintenance of the Gorge #18 facility.

    a. River and Trashrack Debris. River debris consists primarily of leaves, brush, tree branches, and other organic matter with smaller volumes of man-made materials, including plastics, domestic trash, and occasional tires or other larger objects that are carried downstream with river flows. During normal facility operations, floating debris collects in front of the intake trashracks or at the dam

crest. Unless removed, the larger types of debris produce additional headlosses thereby reducing the hydropower operational efficiency.

The intake trashracks are typically visually inspected every work day and cleared as needed to ensure that the facility intake remains free of debris that could potentially adversely affect power generation. GMP cleans the trashracks one to four times per week on average or more as needed, depending on river flow and conditions, through the use of a mechanical trash rake by a GMP employee. Efforts are made to allow natural debris (woody debris and vegetation) to remain in the river and pass downstream into the Project's bypass reach whenever possible. Man made products are removed if feasible without endangering GMP personnel safety. Non-biodegradable debris that is collected from the trashracks is removed from the river for eventual off-site disposal, and materials such as aluminum cans, glass/plastic bottles, etc. are separated for recycling. Trash is properly disposed of in accordance with Vermont Solid Waste Management Rules.

b. Other Debris and Trash. The boater takeout, path and parking area will be periodically inspected and any trash found will be collected and disposed of in accordance with Vermont Solid Waste Management Rules. If large-scale dumping is discovered, the ANR Enforcement Division will be notified.

c. Construction and Demolition Debris. Debris, such as concrete and scrap metals, created from any construction or demolition activities at the project will be removed and properly disposed of in accordance with Vermont Solid Waste Management Rules. GMP will adhere to Vermont Water Quality Standards by preventing the discharge of concrete, asphalt or other materials generated by GMP activities.

d. Hazardous Waste. Hazardous waste generated at the Project will be managed in accordance with GMP's hazardous waste management procedures.

7. Flow and Water Level Management and Monitoring Plan. GMP shall develop and submit to the ANR for review and approval a Flow and Water Level Management and Monitoring Plan ("Management and Monitoring Plan") detailing how the Project will be operated to achieve compliance with the flow and water level management limitations contained in this Order. The Management and Monitoring Plan shall include information on how the Project will be managed to control lag times and avoid related non-compliance with the conservation flow requirements. The Management and Monitoring Plan shall include provisions for continuous monitoring and reporting of flow releases at the Project (spillage, fish passage and turbine discharge), impoundment levels and inflows. The Management and Monitoring Plan shall define applicable emergency and special operations for maintenance, establish the protocols for obtaining approvals prior to performing special operations for maintenance, establish procedures for amending the Management and Monitoring Plan, and establish procedures for reporting deviations

from prescribed operating requirements which reporting shall include explaining the reasons for those deviations and indicating measures to be taken to avoid recurrences. GMP shall maintain continuous records of flows and impoundment levels and provide such records upon request by the Board or the ANR. The Management and Monitoring Plan shall be filed with the Board after approval by the ANR and prior to operation of the Project.

8. Flow Management During Impoundment Refill. During refilling of the Project impoundment after an approved special operation for maintenance or an emergency drawdown, at least 90 percent of instantaneous inflow shall be released below the Project.

9. Aesthetics. Compliance with the bypass habitat flow spillage requirements contained in this MOU shall be deemed to satisfy the aesthetics criteria of Section 1086(a), and shall relieve GMP of the obligation to perform the aesthetics study required by the 1993 Agreement.

10. Recreation. The Parties have agreed upon the location of an acceptable canoe portage route for bypassing the Gorge #18 facility ("portage route"). A map of the portage route is attached to the MOU as Exhibit 2. GMP has constructed a canoe portage take-out path from the Winooski River at a point upstream from the Gorge #18 facility to the public road known as Berard Drive (the "take-out section"). GMP has not yet secured legal access from Berard Drive to the put-in location on the river downstream from the Gorge #18 facility (the "put-in section"). GMP has identified the owner of the property over which the put-in section of the portage route travels and has agreed to acquire from the owner the necessary property rights which will guarantee public use and enjoyment of the put-in section in perpetuity. GMP shall file with the Board, with copies to all parties in this Docket, on the first of each month after the issuance of a Board order in this docket, a report on the status of the put-in section acquisition. Prior to acquisition of the access rights, GMP shall provide the ANR with the draft Grant of Easement document for the ANR's review and approval. GMP shall not close on the acquisition without first obtaining the ANR's approval of the Grant of Easement document. Upon acquisition of legal access rights to the put-in section, GMP shall file proof of legal access with the Board and provide copies of this legal access filing to all parties to this Docket. If GMP is unable to secure legal access to the put-in section, or if the owner of the property over which the put-in section travels exercises any retained rights to modify the put-in section at any time in the future, then GMP shall consult with those parties identified in paragraph 6 of the 1993 Agreement (or their successor organizations), and the Friends of the Winooski (the "Consulting Parties"), to identify an alternate put-in section. Upon selection of an agreed upon alternate, GMP shall pursue, and complete, acquisition of the necessary property rights and comply with the above filing conditions. GMP shall not operate the Project until appropriate legal access has been secured. Upon securing legal access, GMP shall consult with the Consulting Parties to identify any additional improvements to be made to the put-in

section beyond those identified and agreed to below. GMP shall not be obligated to make any such additional improvements unless ordered to do so by the Board with the concurrence of the ANR, but shall make every effort to comply with reasonable requests. The Grant of Easement to be obtained by GMP shall allow reasonable improvements to the put-in section in addition to the specific improvements, applicable to the put-in section, listed below. The Consulting Parties shall have 30 days from the date they receive notice from GMP to recommend additional improvements in writing. At a minimum, GMP agrees to implement the following initial improvements to the portage route prior to operation of the Project:

a. Provide signage to identify the location of the take-out at the river. The sign can be attached to cedars along the riverbank. Faded signs on the railroad bridge abutment shall be replaced.

b. Provide a sign at the switchback above the take-out with an arrow to the right indicating the take-out section route.

c. Provide a clearly marked parking area, sufficient to accommodate at least two vehicles, at the top of the take-out section.

d. Erect a signboard with a map and other information at top of the take-out section where it meets Berard Drive. The map shall indicate the distance to the put-in section where it leaves Berard Drive and to the put-in on the river, and describe landmarks for the turn off from Berard Drive.

e. Provide a sign on Berard Drive at the point where the put-in section leaves the street. The sign shall be clearly visible when traveling in either direction on Berard Drive.

f. Provide a portage sign on the gate at the top of the runway approach maintenance road on the put-in section.

g. Provide a sign indicating the route on the second approach light structure above the river on the put-in section.

h. Mow vegetation off the end of the access road on the put-in section to provide an open path to the put-in at the riverbank. Perform limited mowing as necessary to maintain an open staging/put-in area. Locate put-in between the two drainages at the end of the access road.

i. Perform repairs and maintenance, including mowing, as needed to ensure the take-out and put-in sections remain safe and in good repair for portaging canoes and kayaks.

j. Perform an annual spring inspection of the entire portage route to identify any issues with signage, access and suitability of the paths for portage and taking out and launching canoes and kayaks, and promptly address all issues identified.

GMP and Vermont Transco presently own the property over which the take-out section travels. GMP shall obtain from Vermont Transco prior to operation of the Project all legal rights of access, for itself and the public, that will enable GMP to comply with the above terms and conditions and that will provide the public with such use and enjoyment in perpetuity. Should GMP sell any of the property currently owned by it over which the take out section travels, GMP shall retain the same rights of access for itself and the public. The provisions of this Condition 9 may be amended by agreement between ANR and GMP with notice of such amendment provided to the parties to Docket No. 7754, the Board and the Consulting Parties.

11. Turbine Rating Curves. GMP shall provide the Board and the ANR with a copy of the turbine rating curve, accurately depicting the flow/production relationship, for the record within one year after the Project commences operation.

12. Leakage. GMP may, at its discretion, seal the bore holes at the base of the dam (which are producing the geysers) and the dogleg crack. Any additional work to seal leakage between the base of the dam and the underlying substrate shall be subject to prior review by the ANR and shall not be performed without approval from the ANR.

13. Completion of Project. GMP shall notify the Board and the ANR within two weeks of Project completion and commencement of operation. The ANR, and the Board, shall be permitted to inspect the Project area at any time, upon reasonable notice, to monitor compliance with the terms and conditions of the MOU and this Order.

14. Record Drawings. GMP shall provide the Board and the ANR with a set of as-built plans for the record within one year of the completion of construction of the Project.

15. Project Changes. Any change to the Project that would have a significant or material effect on the findings, conclusions or conditions of the MOU and this Order, including project operation, must be submitted to the ANR and the Board for prior review and approval.

16. In all instances where the terms and conditions established in this Order and the MOU modify a term or condition that was contained in the 1993 Agreement, the requirements established in this Order and the MOU shall apply. Terms and conditions contained in the 1993 Agreement that are not addressed by this Order or the MOU shall continue to be governed by the 1993 Agreement. In any instance where it is unclear as to whether this Order, the MOU or the 1993 Agreement governs, the term or condition that provides the greater benefit to, or is more protective of, natural resources shall prevail.

MOU Sections 2–16.

III. CONCLUSION

Based upon all of the above evidence and provided that the conditions set forth in sections 2 through 16 of the MOU, and Conditions 1 through 3 of the 1084 Certification, are incorporated into any order issued by the Board in this docket, I conclude that the Project will have no undue adverse effect on:

(1) the quantity, kind, and extent of cultivated agricultural land that may be rendered unfit for use by or enhanced by the Project, including both the immediate and long range agricultural land use impacts (10 V.S.A. § 1086(a)(1));

(2) scenic and recreational values (10 V.S.A. § 1086(a)(2));

(3) fish and wildlife (10 V.S.A. § 1086(a)(3));

(4) forests and forest programs (10 V.S.A. § 1086(a)(4));

(5) the need for a minimum water discharge flow rate schedule to protect the natural rate of flow and the water quality of the affected waters (10 V.S.A. § 1086(a)(5));

(6) the existing uses of the waters by the public for boating, fishing, swimming, and other recreational uses (10 V.S.A. § 1086(a)(6));

(7) the creation of any hazard to navigation, fishing, swimming, or other public uses (10 V.S.A. § 1086(a)(7));

(8) the need for cutting clean and removal of all timber or tree growth from all or part of the flowage area (10 V.S.A. § 1086(a)(8));

(9) the creation of any public benefits (10 V.S.A. § 1086(a)(9));

(10) the classification, if any, of the affected waters under Chapter 47 of Title 10 (10 V.S.A. § 1086(a)(10));

(11) any applicable state, regional or municipal plans (10 V.S.A. § 1086(a)(11));

(12) municipal grand lists and revenues (10 V.S.A. § 1086(a)(12)); and

(13) public safety (10 V.S.A. § 1086(a)(13)).

I further recommend that any order entered by the Board in this Docket caution GMP that, as required by 10 V.S.A. § 1090, the construction, alteration and action authorized under

10 V.S.A. § 1086 must be supervised by a registered engineer employed by the Applicant and that upon completion of the Project, the engineer shall certify to the Board that the Project has been completed in conformance with the approved plans and specifications.

All parties to this proceeding have waived their rights under 3 V.S.A. § 811 to file written comments or present oral argument with respect to this proposal for decision, provided that this proposal for decision is substantially in the form as that agreed to by the Parties.

Dated at Montpelier, Vermont, this 3rd day of October, 2012.

s/ John P. Bentley
John P. Bentley, Esq.
Hearing Officer

IV. BOARD DISCUSSION

Two provisions of the MOU contain wording that the Board believes may be subject to misinterpretation.

Paragraph 10 of the MOU contains the sentence, "GMP shall not be obligated to make any such additional improvements unless ordered to do so by the Board with the concurrence of the ANR, but shall make every effort to comply with reasonable requests." The Board understands this phrase to apply to circumstances or actions that may necessitate an order from the Board while also concurrently requiring a permit from ANR. This provision does not afford ANR any special rights or powers to negate the force or effect of any Board order that may be issued in relation to such circumstances or actions.

Paragraph 15 concerns "Any change to the Project that would have a significant or material effect on the findings, conclusions or conditions of the MOU and this Order, including project operation, must be submitted to the ANR and the Board for prior review and approval." The Board will expect GMP to treat this provision as though it read "could" in place of "would." Whether or not a change would be significant or material are conclusions to be reached by ANR and the Board, not GMP.

V. ORDER

IT IS HEREBY ORDERED, ADJUDGED AND DECREED by the Public Service Board ("Board") of the State of Vermont that:

1. The findings, conclusions, and recommendations of the Hearing Officer are adopted.

2. The proposed construction of the inflatable flashboard system at Green Mountain Power Corporation's ("GMP" or "Applicant") Gorge #18 hydroelectric facility ("Gorge dam"), including modifications to the Gorge dam (the "Project"), in consideration of the criteria set forth in 10 V.S.A. § 1086 and in accordance with the plans and evidence presented in this proceeding, will promote the general good of the State of Vermont and will adequately protect the public safety, provided that GMP complies with the conditions of the Memorandum of Understanding between GMP and the Vermont Agency of Natural Resources, set out in section II.D. of the Proposal for Decision.

3. As required by 10 V.S.A. § 1090, the construction, alteration and action authorized by this Order under 10 V.S.A. § 1086 shall be supervised by a registered engineer employed by the Applicant and, upon completion of the Project, the engineer shall certify to the Board that the Project has been completed in conformance with the approved plans and specifications.

4. Construction, operation, and maintenance of the proposed project shall be in accordance with the plans and evidence as submitted in these proceedings. Any material deviation from these plans must be approved by the Board. Failure to obtain advance approval from the Board for a material deviation from the approved plans may result in the assessment of a penalty pursuant to 30 V.S.A. §§ 30 and 247.

Dated at Montpelier, Vermont, this 10th day of October, 2012.

s/ James Volz)
) PUBLIC SERVICE
)
s/ David C. Coen) BOARD
)
) OF VERMONT
s/ John D. Burke)

OFFICE OF THE CLERK

FILED: October 10, 2012

ATTEST: s/ Susan M. Hudson
Clerk of the Board

NOTICE TO READERS: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Board (by e-mail, telephone, or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: psb.clerk@state.vt.us)

Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Board within thirty days. Appeal will not stay the effect of this Order, absent further Order by this Board or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Board within ten days of the date of this decision and order.